



## **Introduction to Computer Science, Grade 11 University Preparation (ICS3U)**

**Prerequisite** – None

**Credit** – 1.0

**Teacher** – Mr. Zuberi

**Email** – [azuberi@torontoprepschool.com](mailto:azuberi@torontoprepschool.com)

**Extra-Help** – Every morning from 9:00 to 9:50 or by appointment in the afternoon

### **Course Description**

This course introduces students to computer science. Students will design software independently and as part of a team, using industry-standard programming tools and applying the software development life-cycle model. They will also write and use subprograms within computer programs. Students will develop creative solutions for various types of problems as their understanding of the computing environment grows. They will also explore environmental and ergonomic issues, emerging research in computer science, and global career trends in computer-related fields.

### **Topics of Study**

#### **Unit 1 – Introduction to Computer Science and Java (24 hours)**

- A brief history of the development of computer science
- Computer basics, programming languages and compilers

#### **Unit 2 – Primitive Types, Strings, Console I/O, and Basic Methods (24 hours)**

- Variables, java identifiers, primitive types, and assignment statements
- Simple screen input and output
- Arithmetic operations, increment and decrement operators
- Parentheses and precedence rules
- Documentation style, computer components and file maintenance
- String constants and variables, concatenation of strings, the Unicode character set
- Classes, string methods and procession

#### **Unit 3 – Conditional Statements and Loop Statements (24 hours)**

- If-else conditional statements and introduction to Boolean expressions and variables
- Nested statements and compound statements
- Multibranch if-else statements
- Initializing statements
- For loops, while loops, and nested loops

#### **Unit 4 – Classes, Methods, and Arrays (24 hours)**

- Parameters, local variables, and instance variables
- Methods that return values, Boolean-valued methods
- Application of 1-D arrays

#### **Unit 5 – Topics in Computer Science (14 hours)**

- Environmental stewardship and sustainability
- Exploring computer science and postsecondary opportunities

## Overall Course Expectations

### PROGRAMMING CONCEPTS AND SKILLS

- A1. demonstrate the ability to use different data types, including one-dimensional arrays, in computer programs;
- A2. demonstrate the ability to use control structures and simple algorithms in computer programs;
- A3. demonstrate the ability to use subprograms within computer programs;
- A4. use proper code maintenance techniques and conventions when creating computer programs.

### SOFTWARE DEVELOPMENT

- B1. use a variety of problem-solving strategies to solve different types of problems independently and as part of a team;
- B2. design software solutions to meet a variety of challenges;
- B3. design algorithms according to specifications;
- B4. apply a software development life-cycle model to a software development project.

### COMPUTER ENVIRONMENTS AND SYSTEMS

- C1. relate the specifications of computer components to user requirements;
- C2. use appropriate file maintenance practices to organize and safeguard data;
- C3. demonstrate an understanding of the software development process.

### TOPICS IN COMPUTER SCIENCE

- D1. describe policies on computer use that promote environmental stewardship and sustainability;
- D2. demonstrate an understanding of emerging areas of computer science research;
- D3. describe postsecondary education and career prospects related to computer studies.

## Required Materials

While it is expected that you will bring your computer to every class, there will be situations where it is more appropriate to take notes using pen/pencil and paper. In addition, while I will try to keep physical handouts to a minimum, there still needs to be a place where they can be easily stored and retrieved.

- 3-ring binder with 5 separate sections
- Lined and blank paper
- Pens, pencils, an eraser, a calculator, and ruler

## Assessment and Evaluation

The distribution of marks into your final grade will reflect your most consistent level of achievement as well as your more recent level of achievement. Term work will be 70% of the overall grade for the course; the final written exam will be 30% of the overall grade.

This course will be broken down into 3 units and each of these units will conclude with a unit test. While these unit tests will make up a large portion of your course mark, there will also be a number of assignments and quizzes.

Course Mark Breakdown:

|                         |     |
|-------------------------|-----|
| Knowledge/Understanding | 25% |
| Inquiry/Investigation   | 30% |
| Communication           | 20% |
| Application             | 25% |

## Course Information

In an effort to reduce our consumption of paper, many of the handouts for this course (other than this one) will only be distributed electronically. This class has a Wiki site that will contain important dates, class handouts, some class notes, and hopefully some student-generated content.

Introduction to Computer Science 11 Wiki Site: <http://cs11fall2012.wikispaces.com/>

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## Academic Due Dates

All homework, assignments, and projects will have a **due date**.

The due date is the **beginning** of the period for that given class. For example if a project is due for the period 1 class, it must be submitted at 10:00 AM, if it is due for a period 4 class on a Wednesday, then it is due at 2:49 PM.

The **due date** represents the date in which the homework/assignment/project is due. Students should submit the homework/assignment/project to their teacher on the due date. If a student does not submit the task on the due date, the teacher will contact the parents/guardian to notify them of the student's outstanding work. The teacher **will not** provide support after the due date has passed.

Late marks will be deducted on late assignments. This strategy is in keeping with the Ministry's policy document "Growing Success". Late projects/assignments will be assessed at a reduction of **5% per day** for the first two days and **10% per day** after that to a maximum of **50%**. Each project will be assessed for the 100% of its original value, and late marks will be clearly stated on the final evaluation. After 6 school days, a student will receive a zero. Students are strongly encouraged to still hand in late projects for assessment and written feedback. A Saturday Club inclusion will be made within the 6 days.

Projects/assignments turned into the teacher after they have been marked and returned to students, will not be awarded a grade if the project/assignment is one the teacher believes can be copied from peers (at teacher's discretion), however, written feedback on the assignment will be given (journals, reflection pieces, etc).

### **Extension Request Form**

There is a procedure for students to seek relief from a due date and extend a deadline without an academic penalty. In extraordinary circumstances, **extensions may be granted, if an Extension Request Form is filled out by the student and signed by a parent and approved by the teacher at least one day before the due date**. It is up to the discretion of the teacher and the school administration whether or not to accept the extension request. A student may request an extension to the **maximum of two times in each course and for no more than three days**. After the allotted time has passed and the assignment has not been submitted, then late marks will be assigned. Our policy recognizes that extenuating circumstances may legitimately prevent a student from meeting a due date. The Extension Request Form may be garnered from the principal or the vice-principal.

### **Illness/Doctor's Notes**

If a student is absent on the due date, a doctor's note (or parental note in case of a family emergency) must be provided to the teacher in order for the student to submit the assignment. The assignment must be submitted upon the **first day** the student returns.

### **Parental Communication**

Parents will be contacted if the assignment/project is not submitted on the due date.

### **E-mail Receipt of Assignments**

Since weekend days will be included in the late policy, the submitted time and date will be based on the time that the assignment arrives in the teacher's e-mail inbox.

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Communications Technology 12 Wiki Site: <http://cmt12.wikispaces.com/>

### **Classroom Procedures**

1. *Respect each other.*
  - a. A classroom should be a place where everyone feels comfortable asking questions and expressing their views. Any failure to respect one another will result in a poorer classroom experience for everyone.
2. *Stay on top of the course material.*
  - a. In a semestered environment it is easy to fall behind very quickly. If you are away for any reason, it is recommended that you speak to either myself or a classmate to determine what you missed. It is also a good idea to always check the course Wiki.
3. *Do not miss important test dates or presentation dates.*
  - a. It is very difficult to accommodate multiple test dates and so every student should do everything possible to write tests or perform presentations on the assigned dates. If a test or presentation is missed, the student must bring a note from a parent or guardian stating the reason for the absence.
4. *Participation in the class is essential.*
  - a. Staying focused in the classroom is imperative. This, of course, means that music players, cell phones and portable gaming devices are not permitted in the classroom.
  - b. This also means that you should only be using your computers for tasks related to your learning. Abuse of this privilege will result in your computer being confiscated for the duration of the period.
5. *Have fun.*
  - a. As much as this is a classroom and you are a student, this does not mean that you are not permitted to enjoy yourself. Ask lots of questions and try to find a way to let the material inspire your curiosities.